

Ice rink injuries: a new epidemic in Northern Ireland

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INTRODUCTION

A new Olympic-size ice rink (60 × 30m) opened in Dundonald in 1986 less than a mile from the Ulster Hospital. At about the same time a smaller 38 × 22m 'family fun rink' opened in Bangor within eight miles of the Hospital. These are the first ice rinks in Northern Ireland for nearly 20 years since the closure of the rink in the King's Hall, Balmoral, Belfast, and the majority of those using the facilities were novices. A large number of patients were referred to the Accident and Emergency Department of this hospital with injuries sustained while ice skating, and an initial analysis of the injuries received in those attending in the first six months was made by Freeland.¹ Some of these patients were referred to the Orthopaedic and Fracture Clinics at the Ulster Hospital for further treatment. This paper presents the types of injury referred to these two specialist clinics in the first six months of the opening of the rinks.

RESULTS

During the assessment period, 636 patients attended the Accident and Emergency Department following injury at the ice rink, and 78 (12%) were referred to the Orthopaedic and Fracture Clinics, or admitted to the Fracture Wards. There were 48 females and 30 males, aged 8–68 years. The most frequently injured age group was that of 16–25 years in both sexes. The injuries treated consisted of 70 fractures, two dislocations, five effusions into joints, and two soft tissue injuries. Two patients had double injuries. There were four injuries to bones in the hand. Wrist injuries were the most common with 37 (fracture of the distal radius in 27 and the scaphoid in 4). There were four Colles' fractures (fracture of the distal radius less than 2.5 cm. from the wrist often with fracture of the ulnar styloid with impaction, backward and radial angulation of the radius), six fractures at the elbow and one at the shoulder. In the leg there were 12 ankle fractures, three fractures tibia and fibulae, and three fractured patellae. The dislocations involved a shoulder and patella.

The fractures were all closed injuries, 19 involving the lower limb and 51 the upper limb. Fifteen required reduction, two by open methods, and five of these patients required hospital admission. The dislocations were reduced in outpatients under anaesthetic. The distribution of injuries by their anatomical sites, male compared with female, is shown in the Figure. Upper limb compared with lower limb injury ratios are similar; the anatomical site of the injuries varies in the lower limbs with a greater proportion of knee injuries in females and greater ankle and tibia and fibulae injuries in the males. This may reflect the fact that the

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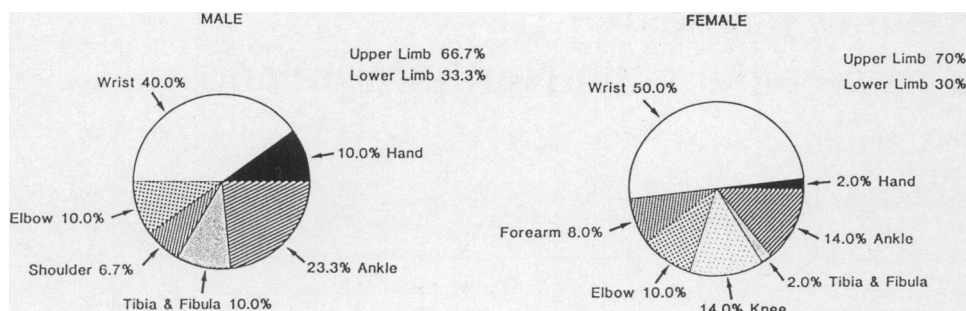


Figure. Anatomical distribution of injuries comparing male with female.

injuries in males tended to be high speed injuries. The number of injuries referred to the clinics was initially high, especially in the first four weeks. A second peak was noted after the Christmas holiday period, but the overall trend was downward as those skating gained more experience. There were over 355,000 attendances at the ice rinks during the assessment period, an average of 14,200 per week. The 636 injuries seen at the Accident and Emergency Department represent one injury per 550 ice rink attendances, or 0.2%. Of these, 78 were referred to the Orthopaedic and Fracture Clinics at the Ulster Hospital.

DISCUSSION

Ice skating has become very popular in Belfast since the opening of the new rinks, and skating appeals to a wide age range. The initial high number of injuries correlates well with the learning phase that must take place in any sport taken up for the first time by non-experienced participants. Most skaters are female, and more females are injured.^{2, 3, 4}

The more severe injuries were seen in the males, tending to involve the lower limb and due to relatively high speed accidents, usually while playing ice hockey.^{5, 6} The majority of injuries in both males and females involved the upper limb, falling on the outstretched hand. The nature of the sport requires considerable balance control, and inevitably leads to a large number of falls on to a very hard surface. Another major hazard is collision with another skater who is often out of control, leading to injury to one or both. Lower limb injuries requiring orthopaedic treatment were either high speed incidents, in the case of most of the fractured tibiae, or due to severe rotational forces at the ankle joint.

The severity of the injuries in those patients attending the Accident and Emergency Department were variable: only 12% received specialised orthopaedic management at this hospital. This is less than in other reports,^{3, 4} since a number of patients with fractures were being referred to a hospital closer to their home, including some with lower limb injuries who required admission. Comparing the injury rate with that in some other sports, ice skating is relatively safe. Contact sports such as rugby union and rugby league have injury rates of 200 and 580 injuries per 10,000 playing hours respectively,⁷ compared with 20 injuries per 10,000 playing hours on the ice, assuming that the skater remains on the ice for one hour each session.

Skating will remain a popular leisure activity, because of its social nature, and the various activities that can be pursued on the ice, such as hockey or curling. This

was confirmed when 355,000 skaters attended the rinks in the first six months. The nature of the sport makes falls inevitable. Suggestions have been made before on the use of protective clothing, and improving that now available, as well as adding more protection to the barriers around the ice rink. At the very least, wrist splints could be offered, but to date no controlled trial has been carried out to show if protective clothing would be of benefit. Other measures have been suggested, such as limiting the numbers on the ice at any one time, but this has not been supported.^{1, 4} Segregation of beginners from those more competent may be more relevant in this respect.

These two ice rinks have had a major effect on the workload on both the Accident and Emergency Department and the Orthopaedic Department in the Ulster Hospital. Since the Hospital is so close to the rinks, liaison between the rink management and the hospital staff would be appropriate to discuss methods of prevention of injury; additional funding to the hospital from the Health Authority or even from the owners of the ice rink should be considered since more than 1,000 new patients each year may be expected as a result of injuries sustained on the ice.

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